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Digital multichannel complex for the monitoring of the ionosphere

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Abstract

The method of oblique ionospheric sounding is widely applied in researches of global processes in lower termosphere of the Earth. Monitoring of geophysical processes in the Earth atmosphere is frequently carried out with the use of shortwave (HF) radiosignals (1-30 MHz). Multichannel passive systems of HF - monitoring allow to carry out researches without radio transmitter constructing. Multichannel systems allow to carry out monitoring in various modes (multifrequency, goniometric, etc.). But this requires identity of channels, opportunities of fast adaptation to various conditions of radiowaves propagation and to various characteristics of transmitting systems (a signal bandwidth, a kind of modulation, etc). The results of modernization of multichannel doppler phase goniometric complex of Kazan State University "Spectrum" are submitted in this report. We use the module of initial development of the DSP processor TMS320C6416 DSP STARTER KIT (performance 4800 MIPS) and evaluation module ADC ADS8364EVM (16 - bit, 6 parallel channels, 250 KHz). It allows to organize the multichannel digital receiver by using a signal intermediate frequency of receivers (215 KHz), and get processing signal in a dynamic range 90 dB and a bandwidth up to 100 KHz.

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